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THE ASHKHABAD EARTHQUAKE
A Study In Disaster Control

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The Ashkhabad Earthquake - A Study in Disaster Control

Summary

Today, the Ashkhabad earthquake of 5 October 1948 appears chiefly of historical interest. From the point of view of intelligence, however, it provides the only available example of what the USSR can do in terms of disaster control, and for this reason is worthy of detailed study and evaluation.

Situated in Soviet Central Asia not far from the Iranian border, Ashkhabad is an administrative center of the Turkmen Republic, an intermediate point on the Central Asiatic Railroad between Krasnovodsk on the Caspian Sea and Tashkent to the east.

The earthquake, one of the most severe in the history of the USSR, destroyed most of the city, which had a population of perhaps 125-150 thousand. All essential services were disrupted -- water and power supply cut off, telecommunications interrupted, radio station transmission stopped, and city and rail transport brought to a standstill. There were virtually no facilities left for feeding or sheltering the stricken population, and most of the medical aid had to come from outside. The toll of dead and injured was high, including many of the more important officials and key personnel.

The Soviet Government immediately instituted an airlift to bring in medical personnel, medicines and other vitally needed materials, and to evacuate critically injured persons and homeless children. Within a little more than two days the railroad was again functioning, and thereafter the airlift was discontinued. Technical and specialist personnel came to the city in large numbers; food, clothing and other needed goods were shipped. Hospitals were established in tents and hospital trains, while emergency feeding points and more tents for shelter were erected to care for the rest of the population. Construction materials also were transported to Ashkhabad for reconstructing the city.

The available evidence indicates that the Soviet Government reacted energetically to the emergency brought about by the earthquake. Before long all essential services were again functioning. However, it is also clear that in the long-term reconstruction of Ashkhabad, the Soviet Government has been seriously deficient, probably because there were other more urgent economic priorities in the USSR. The experience of the Ashkhabad earthquake appears to indicate that, while the USSR has the capability of dealing with the immediate emergency resulting from a disaster, Soviet capacity to make good the damage caused by such a disaster over the long term is severely limited.

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I. Introduction - History of Ashkhabad.

Ashkhabad, formerly known as Poltoratsk, was founded as a Russian town in 1883. 1/ Today it is the capital of the Turkmen Soviet Socialist Republic. Situated on the Central Asiatic Railroad between Krasnovodsk on the Caspian Sea to the west, and Tashkent to the east, Ashkhabad prior to the earthquake had a large modern railway station. 2/ Directly to the north is the Peski Kara Kum Desert, while in the south are the Elbruz Mountains stretching along the Iranian-Turkmen border.

In 1940, Soviet sources described Ashkhabad as a "great industrial and cultural center" of the Turkmen Republic, and mentioned the existence there of some light industries and a large food industry. 3/ By 1948, "Ashkhabad had more than 200 industrial enterprises, among them a mechanized glass works well equipped with the latest machinery, a very large textile spinning works, a silk spinning factory, meat combine, a number of enterprises of light, food, and gastronomic industries, a large refrigeration plant, a milling combine, canning factories, and the largest winery in Central Asia." 4/ Non-Soviet sources also credit Ashkhabad with having had a metallurgical plant, "Krasniy Metallist"; a metal works, "Krasniy Molot"; a factory which produced diesel engines for farms; a carbon dioxide plant which also produced other inorganic chemicals; and several explosive plants. 5/ A plant some 150 miles to the north processed sulphur obtained from rich deposits in the vicinity.

Population statistics indicate that Ashkhabad grew from a city of 72,000 in 1926 6/ to 126,000 in 1940. 7/ A further increase between 1940 and 1948 may be assumed.

Ashkhabad lies in a region of orchards and vineyards. Before the earthquake the city was divided into two portions, old and new. The street pattern was gridiron, the streets straight, wide and lined with trees. All those in the new part of town and some in the old were paved with asphalt. The two three-laned asphalted roads entered the city, one from the Iranian frontier to the south and the other from Firyuza to the west. A third surfaced road entered from the northwest. An improved dirt road from the southeast formed an additional link with the Iranian border. The city was served by three important airfields, one situated 1 1/2 miles southeast in the direction of the Iranian frontier, another 9 miles west of Ashkhabad on the road to Firyuza, and the third to the north adjoining the city. 8/

1/ Encyclopedia Britannica, 1949 ed. The Columbia Encyclopedia gives 1881 as founding date.

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As the capital of the Republic, Ashkhabad must have had direct telegraphic and telephonic communications not only with Moscow but with other cities and regional centers in the Turkmen Republic. The city reportedly had three radio stations, one at the airfield to the southeast and another at the airfield on the Firyuza road. The third may have been in the radio center for transmitting and receiving in the southern sector of the city, but this cannot be verified. 1/

Billeting facilities included four barracks, and a 46 unit apartment building erected for officers. A large warehouse and three large oil tanks, all of undetermined capacity, were located at the railroad station. A number of hospitals existed, but data on location and size are lacking. 2/

Ashkhabad, in 1940, had 5 higher educational institutions (among them the "largest medical, agricultural and pedagogical institutes"), 3/ twenty technicums or high schools, 9 scientific research institutes, 4/ an opera house, the National Dramatic Theatre, and 7 local theatres. 5/

Today, the damage caused by the 1948 earthquake is still in process of being repaired. Judging from the general restoration plan 6/ much of the city is to be entirely rebuilt. This includes the most important square, "Republican Square," around which will be erected the Government House, the building belonging to the Central Committee of the Turkmen Communist Party and the Soviet Army House.

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II. The Earthquake.

At 2312 on 5 October 1948 Moscow time or 0112 on 6 October local time, an earthquake occurred in the general vicinity of the city of Ashkhabad. The earthquake was estimated to have had a strength of about 9 at Ashkhabad; shocks were registered by Soviet seismological stations in Moscow (where it was said to have exceeded anything previously noted), Sverdlovsk, Irkutsk, Tashkent, Vladivostok, Tbilisi, Erevan, Stalinabad, Alma-Ata, Frunze, Andizhan, Samarkand, Chimbkent and elsewhere. The Ashkhabad seismological station itself was either destroyed or seriously damaged. As a result of precise analysis, ¹/₇ the epicenter of the earthquake was finally located at 37.6 north latitude, 58.7 east longitude, or about 25-30 kilometers southeast of Ashkhabad within the borders of the Turkmen SSR.

The city of Ashkhabad was in large measure destroyed. Pravda of 9 October 1948 reported the destruction of "industrial enterprises, administrative buildings, the majority of houses, city and railroad transport, communications installations and cultural establishments." S. Babayev, Chairman of the Turkmen SSR Council of Ministers, was quoted ²/_{as} saying that all industrial enterprises in the city had suffered damage to a greater or lesser degree. Out of more than 200 industrial enterprises, 42 were reported destroyed. Babayev also noted, however, that some buildings still remained standing and could be quickly reconstructed in order to provide living quarters.

A published account in Pravda of 14 October asserts that some buildings 2 to 3 stories in height escaped more or less unscathed, and a grain elevator, designated as the tallest structure in Ashkhabad, was specifically said to have been somewhat damaged but did not collapse. The same account claims that cylindrical structures withstood the quake better than other types of buildings.

V. F. Bonchkovski, writing in the December 1948 issue of Vestnik Akademii Nauk, reported the findings of a special seismological commission sent to Ashkhabad by the USSR Academy of Sciences. This commission determined that houses of adobe construction were almost entirely destroyed; although the sun-baked bricks remained whole, the thin mortar with which they were cemented gave way, causing the collapse of these houses. Solid-masonry or baked-brick houses suffered only from collapse of single walls or open cracks. Those buildings which were constructed with reinforced concrete foundations or earthquake-proof frameworks were damaged to a much lesser extent. Wooden structures fully withstood the earthquake and remained usable. Bonchkovski also stated that due to the fact that there was no permanent ground displacement, roads, cellars, water conduits, telegraph cables and all buildings with solid foundations were not damaged.

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Bonchkovski's statement that underground installations had escaped undamaged is not exactly in accord with the actual disruption of essential services which took place as a result of the earthquake. The water and electrical supply of the city was cut off, telephone, telegraph and radio connections were severed or interrupted.

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There was considerable destruction in the vicinity of the railway station, and rail movements ^{3/} in the direction of Krasnovodsk and toward Tashkent came to a halt. The food distribution system and medical facilities were also disrupted.

The actual number of people killed in Ashkhabad by the earthquake has never been revealed by Soviet sources and hence remains unknown. However, an estimate of the dead may be ventured on the basis of previous death tolls from earthquakes in the area. Soviet sources estimated that 5 thousand people perished in the Kuchan earthquake of 1893, 8 thousand in the Kuchan earthquake of 1895, and across the border in Iran at least 5 thousand as a result of the Ashkhabad earthquake of 1929. ^{4/} The 1948 earthquake has been described as the most destructive ever experienced in Ashkhabad and one of the strongest in the history of the Soviet Union. In view of this, and also in view of the probability that Ashkhabad's population in 1948 had more than doubled since 1929, ^{5/} the death toll could be conservatively estimated at 10-20 thousand and may actually have been considerably higher. Babayev, in his Pravda interview of 11 October, announced that a number of high officials had died in the earthquake. Deputy Minister of State Control Palkovich; Deputy Minister of the Meat and Dairy Industry Uvarov; deputy Gosplan representative Mamontov; Public Prosecutor of the Turkmen SSR Gukov; and Deputy Chief of the Ashkhabad Railroad Zamchalov were among the victims.

Pravda of 10 October reported that a total of 6,226 injured persons was evacuated by air to other cities -- the majority of them on three days, 6, 7 and 8 October. This airlift of those seriously injured does not give a clear picture of the total number of injured since many of these were doubtless treated in field hospitals and hospital trains at the scene of the disaster.

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III. Administrative Measures Taken to Cope with the Emergency.

All Union

On 6 October 1948 a Government Commission of the USSR Council of Ministers for the Liquidation of Effects of the Earthquake in the city of Ashkhabad was created. The Commission was "to assist the people of Ashkhabad by providing medical help and foodstuffs to the victims and by finding shelter for the homeless."

There is no evidence that this Government Commission was active beyond the period of the immediate emergency, or that it played any sustained part in measures taken for the reconstruction of Ashkhabad. However, Pravda stated on 9 October 1948 that the Commission, together with the appropriate ministries of the USSR, was "undertaking prompt measures in order to determine the degree of destruction to industrial enterprises of Ashkhabad and to afford aid in the earliest possible reconstruction of the city's enterprises."

For the most part, the Government Commission appears to have had the responsibility of expediting emergency assistance from the All-Union Government and coordinating the efforts of the various All-Union ministries to that end. Thus, it is reported in the Soviet press that the Commission issued orders for the delivery of clothing, footwear, cotton cloth, blankets, utensils and other domestic articles to the Turkmen Council of Ministers for distribution among the population.

The Government Commission also was active in coordinating relief efforts of neighboring Union Republics, particularly the Uzbek, Azerbaijan, Kazakh and Tadzhik SSR's.

The Commission was able to make recommendations to the USSR Council of Ministers. For example, it was reported in the Soviet press that the Council of Ministers had allocated funds to the Government of the Turkmen SSR for free food, in accordance with a proposal of the Commission. The Council of Ministers also issued the following decrees:

(a) On 25 October 1948 -- concerning the exemption of Ashkhabad (and presumably of other areas affected by the earthquake) from all manner of deliveries to the State for the next two years; and

(b) On 26 November 1948 -- authorizing the Ashkhabad Commercial Bank to open an additional credit of two million rubles to the Council of Ministers of the Turkmen SSR for the issue of twelve-year loans of 15 thousand rubles each to individuals in areas affected by the earthquake. The same decree authorized the allocation to the Chief Directorate of State Insurance of the Ministry of Finance (GOSSTRAXH) of 35 million rubles for paying off compensation claims.

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Local

Chairman of the Turkmen Council of Ministers Babayev stated in Pravda of 11 October that assessment commissions were being set up for the purpose of assessing damage to individual enterprises. All-Union Ministries were giving active help in this work by sending a large group of specialists, headed by Deputy Ministers. Babayev also noted the help being given by all of the Union Republics, particularly mentioning the Russian, Azerbaijan, Uzbek, Kirgiz, Tadzhik and Kazakh. The reference to help from the neighboring Republics was amplified by a TASS dispatch from Baku on 9 October 1948 which stated that the Azerbaijan SSR had established a Government Commission to supervise assistance to the Turkmen capital, and by a published report in Sovetskaya Kirgizia of 15 October that a similar Government Commission had been created in the Kirgiz SSR. It is possible that other Union Republics mentioned by Babayev did likewise and that the work of these Government Commissions was supervised on the All-Union level by the Government Commission of the USSR Council of Ministers.

Babayev further stated that surviving members of the Turkmen Council of Ministers had been placed in charge of different aspects of the work of rescue and recovery in relation to their normal spheres of interest. Local Party and Komsomol organizations were also evidently pressed into service. A dispatch to Komsomolskaya Pravda on 12 October stated that Komsomol members were helping to clean up the damage at railway stations and at the Krasniy Metallist factory.

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Pravda reported on 11 October that shipments of food and clothing from the reserves of the All-Union Consumers Cooperative were being unloaded at Ashkhabad.

According to Sovetskaya Kirgizia of 15 October, the city bank in Ashkhabad was making payments for the first half of October and the city Soviet had begun to make payments of state aid to earthquake victims. It is not clear whether this latter action was undertaken in anticipation of the Council of Ministers decree published on 25 October.

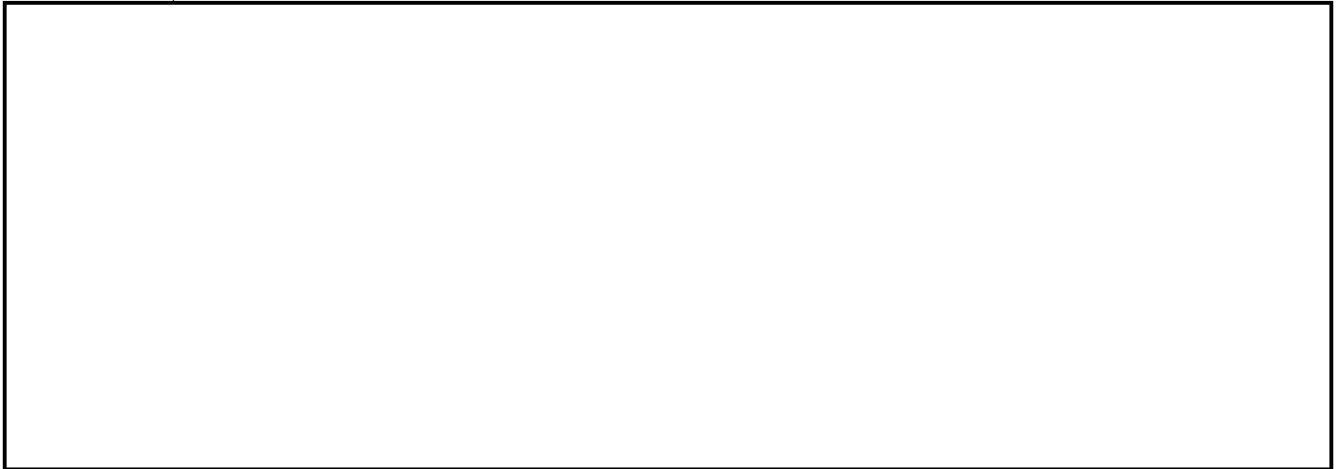
It should also be noted that the authorities took the precaution of dispatching military units of the Turkestan Military District to the area, presumably to maintain order and prevent looting.

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IV. Material Measures Undertaken To Cope with the Emergency.

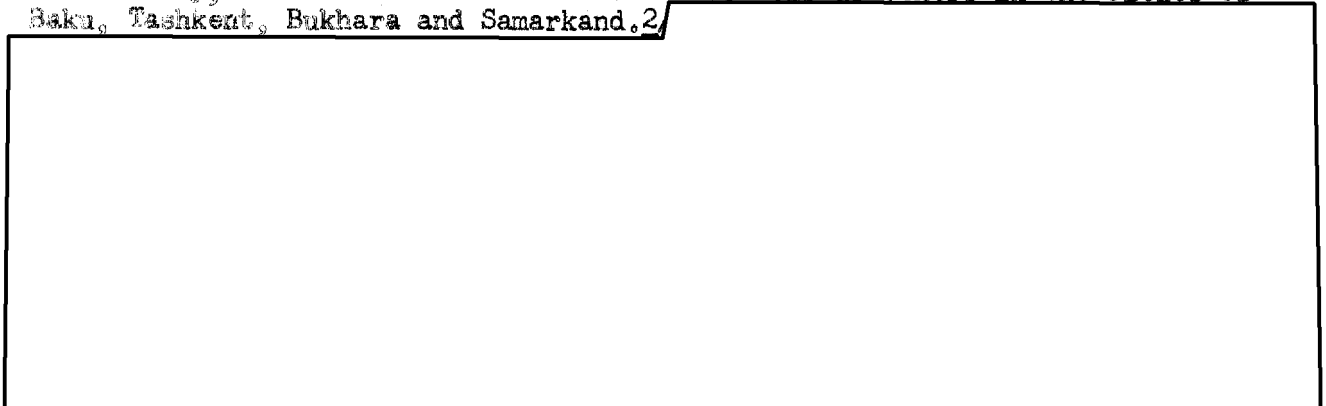
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Airlift



According to Pravda, the evacuation of seriously injured victims on 6, 7 and 8 October was carried out principally by heavy transport planes of Civil aviation. 120 planes were employed daily during those three days in the evacuation of these victims to infirmaries and hospitals of cities in the Turkmen SSR — Mary, Chardzhov and Krasnovodsk — as well as others in the cities of Baku, Tashkent, Bukhara and Samarkand.^{2/}

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Rail

Extensive destruction to railroad transport was reported in early press accounts from Ashkhabad. Zarya Vostoka of 10 October stated that railroad communications were cut off until the morning of 8 October. Special hospital trains started to evacuate victims at that time; according to Pravda, 43 trains were received at the Ashkhabad rail junction between 8 and 9 October. On 11 October it was announced that railway communications with Krasnovodsk and Tashkent had been restored.

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^{2/} This should be compared with the approximately 200 four-engined aircraft used in the Berlin airlift.

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A brigade of directors of main administrations in the Ministry of Transportation led by a Deputy Minister directed the reconstruction work at Ashkhabad, in which several thousand railway men were reportedly engaged at the main junction and along adjacent track sections.

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Radio, Telephone and Telegraph

A high priority was given to restoration of communications facilities severely damaged by the earthquake.

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The Ashkhabad radio station was not able to resume broadcasting until 15 October.

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Pravda announced on 10 October that the telegraph and the telephone communications of Ashkhabad with many cities and regional centers of the Turkmen Republic had been restored. The next day Pravda reported that telephone and telegraph connections with Tashkent and Moscow had been repaired

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Despite these optimistic public announcements, the authorities had by no means succeeded in overcoming all communications difficulties.

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On 15 October there was a press report that assembly of a second switchboard with 200 numbers" was to be completed that day.

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Electric Power, Water and Food Supply

Ashkhabad appears to have been left virtually without electric power or water supply, despite the claims of Bonchkovski, Deputy Director of the

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Geophysics Institute of the USSR Academy of Sciences, that underground installations, including water conduits, were not damaged.

First efforts were devoted to provide electricity for the railroad junction and a number of the more important city streets.

A TASS dispatch from Baku on 9 October reported that three mobile electric power stations had been sent to Ashkhabad and that a brigade of engineers of the Azerbaijan Power Combine (AZENERGO) was flown there to organize the work of reconstruction of electric power stations.

It was evidently necessary initially to ration available water supplies while reconstruction work was getting under way, and the Turkmen Minister of Municipal Economy was charged with this responsibility. Pravda declared on 9 October that the city of Ashkhabad was placed in a serious situation with regard to the supply of water. On 15 October it was claimed that three-fourths of the water-main system had been restored.

Aside from electric power and the water supply, special emphasis was placed by the Turkmen Council of Ministers on restoring those public facilities which could provide the population with food, such as bakeries, restaurants and "enterprises of the food and gastronomic industries." This last grandiose phrase appears to describe the stalls and makeshift stores which were established as quickly as supplies became available. According to the Chairman of the Turkmen Council of Ministers, Babayev, there were 50 stalls -- "stationary trade points" -- in the city by 10 October.

It was said that large quantities of flour, groats, canned vegetables and fruits, sugar and other products had been removed from state food reserves located in the vicinity of Ashkhabad. TASS also reported that "large shipments" of sugar, fish, 25 tons of margarine, 50 tons of household soap, 5 tons of tea, quantities of canned goods, confections, cheeses, etc., as well as clothing were being unloaded at Ashkhabad from reserves of the All Union Consumers' Cooperative.

Tea, cocoa, chocolate, powdered eggs, powdered milk and other products were shipped by plane from Moscow. Other press accounts related how the population was being supplied with bread, groats, flour, meat and salt. In two days, 8-9 October, 18 cars of baked bread, 54 cars of flour and groats and 99 cars of other food products arrived by rail. 10 tons of concentrated foods came by air, according to the same press dispatch. At least one All-Union Ministry, the Ministry of Transportation, sent food supplies and other goods to Ashkhabad earmarked for its own workers in that area.

Neighboring Union Republics also made food supplies available. The Kirgiz Republic sent 24 carloads of canned goods, and 6 carloads of cheese, sausage, etc. Kommunist Tadzhikistana reported on 15 October that over a five-day period planes and special trains transported 736,000 cans of meat products, 62 tons of butter, 16 tons of sausage, 100 tons of macaroni products together with wearing apparel to Ashkhabad from the Tadzhik SSR. Azerbaijan provided similar supplies.

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Medical Aid

As might be expected, the most expeditious action taken by all authorities concerned was connected with medical aid for the disaster victims.

All medical workers of the Turkmen Republic were mobilized at once and, by order of the USSR Government Commission, medical personnel were flown to Ashkhabad by the evening of 6 October from neighboring Republics and other parts of the USSR.

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In all, more than a thousand doctors and other medical workers were reported to have arrived in Ashkhabad on 6, 7 and 8 October from Moscow, Baku, Alma-Ata, Tashkent and a number of other cities.

Medicines were also made promptly available. Again the neighboring Republics played an important part

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By 9 October Pravda was able to report that an "adequate supply" of medicines, in particular penicillin and anti-tetanus and anti-gangrene serums, dressings and disinfectants had been accumulated in the city.

The same planes and trains that brought in rescue workers and essential supplies were busy taking out some of the more critically injured persons as well as homeless children, who were taken to children's homes in other parts of the Turkmen SSR, and to cities of the Uzbek and Kazakh SSR's.

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Judging from available evidence, it appears possible that the medical aid sent to Ashkhabad was far from adequate. The interest manifested by the principal authorities in the over-all medical problem may be judged from the presence at Ashkhabad of Boldyrev, Chief State Medical Inspector of the USSR, and Yelanski, Chief Surgeon of the Soviet Army.

Shelter and Other Forms of Assistance.

With damage to housing at Ashkhabad reported as "enormous", the task of providing shelter for the population was evidently a major one. However, since the earthquake occurred before the relatively short winter season set in, the authorities had time in which to carry out the most urgent measures.

As a first step, 3,000 insulated canvas tents were sent to Ashkhabad, and press reports indicated that 5,000 more were to be delivered on 8 and 9 October. (The Azerbaijan SSR reportedly sent several hundred tents and the Tadzhik SSR sent 50). Furthermore, 50,000 square meters of pre-fabricated wooden houses were transported to Ashkhabad. Babayev noted that the All-Union Government had allocated to Ashkhabad a large number of portable wooden houses, heated tents and building materials.

The reconstruction of only partially damaged buildings began almost immediately. Large quantities of plywood, lumber, roofing, paper, glass panes, cement, nails and other building materials were reportedly arriving in the city. One news account cited a shipment of 50 cars of logs, 10 cars of plywood and tar paper, 30 cars of lumber, 2 cars of sheet iron and a carload of nails allocated by the All-Union Consumers' Cooperative for reconstruction of dwellings.

Clothing and footwear were allegedly supplied free to the population and charged to the account of funds made available by the government of the USSR. The Government Commission ordered that these articles together with cotton cloth, blankets, household utensils and other domestic articles be shipped to the Turkmen Council of Ministers. Pravda reported on 11 October that 30 million rubles' worth of industrial goods, utensils and domestic articles had been sent to Ashkhabad.

Two days earlier Pravda also reported that 300 trucks and 50 automobiles had been shipped to the Turkmen Council of Ministers.

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V. Actual Progress in the Reconstruction Period.

When the immediate emergency had come to an end and all essential services had been restored, the local authorities were confronted with the formidable task of reconstruction. This task was of necessity undertaken in the face of a number of important obstacles:

(a) Most of the administrative establishments and industrial installations of Ashkhabad had been destroyed or damaged.

(b) A number of responsible officials and other key personnel had been killed in the disaster.

(c) Further difficulties were caused in the early stages through lack of funds, and later in several cases, excavation and reconstruction were held up through inability to pay for materials and to pay wages.

It is known that mass inoculations for leishmaniasis of the skin (a disease particularly rampant in Central Asia and Transcaucasia, sometimes assuming epidemic proportions) became imperative in connection with the influx of people for reconstruction work in Ashkhabad. 2/



there was widespread

discontent in Turkmenistan due to the failure to reconstruct in Ashkhabad and its suburbs many of the buildings which were destroyed by the earthquake. 1/ A special board set up to supervise reconstruction of the city encountered such severe criticism that it was compelled to abandon the project to another board. Since shipments of building materials were never on time, reconstruction continued to advance slowly. Construction was also reported to be shoddy -- nothing unusual for Soviet construction in any case.

The most definite confirmation of this situation at Ashkhabad was contained in the USSR budget speech of Deputy Batyrov from the Turkmen SSR. Speaking on 19 June 1950, Batyrov stated that the program was lagging badly, and that the reconstruction of Ashkhabad would remain a major task that would require from three to four years to complete. 2/



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VI. Conclusions

25X1 [redacted] in spite of the tremendous destruction of the earthquake, essential services including railways and telecommunications were rapidly put back into working order. It is clear that the USSR Council of Ministers acted quickly, and the Turkmen Council of Ministers, with the assistance of supplies of all kinds, was able to begin the work of reconstruction and to maintain Ashkhabad as the administrative center of the Republic.

It is equally clear that the long-term reconstruction program was not commendably executed. While the responsibility for this state of affairs cannot be so easily fixed, there seems reason to suspect that the basic fault lies less with the inefficiency, negligence or corruption of the authorities -- all of which may have contributed in part -- than with the general economic conditions prevailing in the USSR. The competition for essential goods and services is so severe that only a very high priority of the type generally assigned by the foremost leaders of the USSR would have sufficed to complete the reconstruction of Ashkhabad in the shortest possible time. Once the immediate emergency was over, this priority was not forthcoming.

The Ashkhabad earthquake appears to have provided a test case for Soviet capability in disaster control -- at least as it existed in 1948. The capability at that time was such that the USSR could cope adequately with the immediate problems raised by such a disaster if it were not obliged to face more than one at a time. The long-term capability for making good the damage caused by the catastrophe would appear subject to severe limitations, particularly if the demands upon the Soviet economy were as great or greater than they have been since 1948. It is reasonable to doubt whether a long-term reconstruction program of this kind could be sustained in the face of other difficulties elsewhere under wartime conditions.

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